

Figure 1

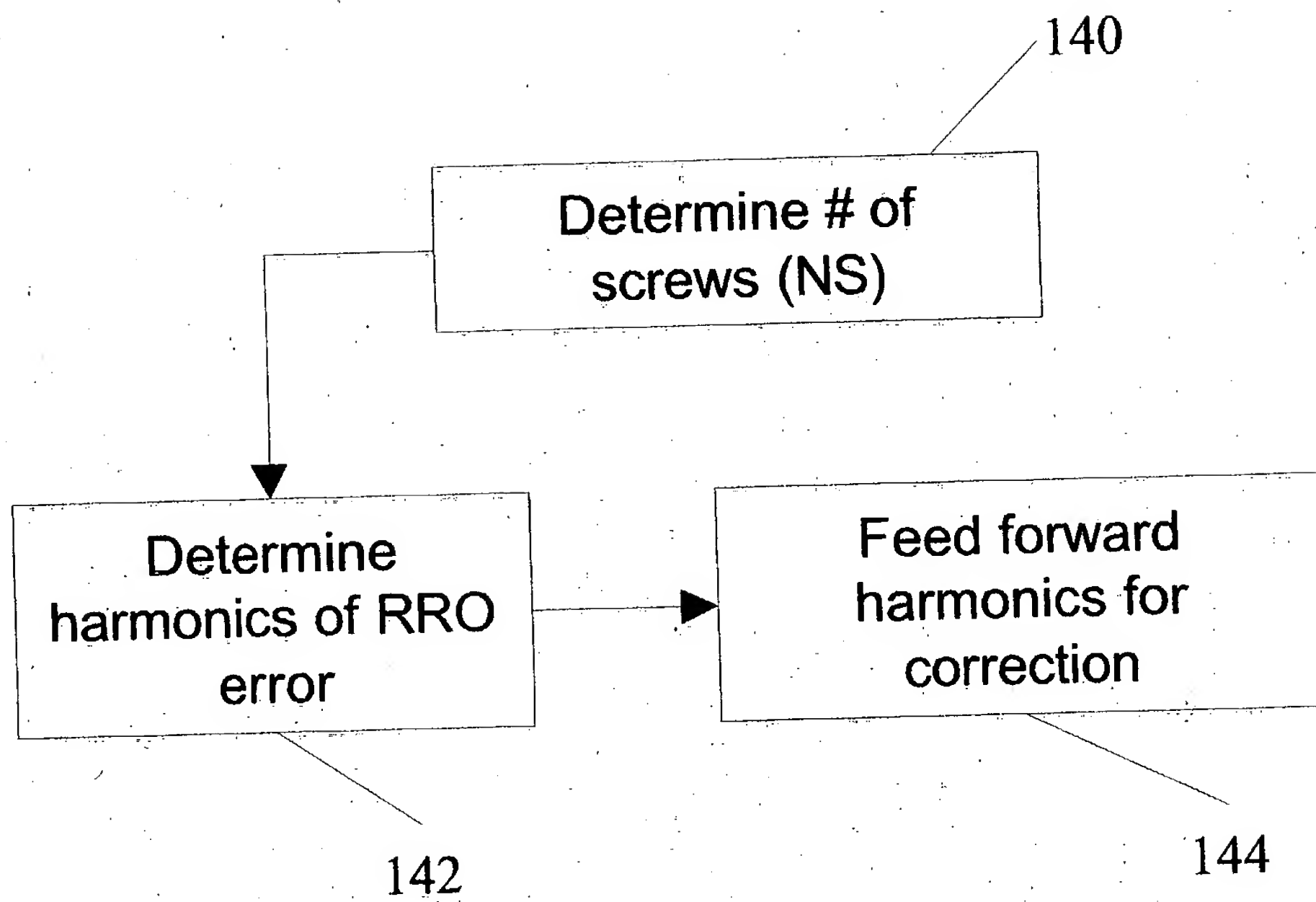


Figure 2

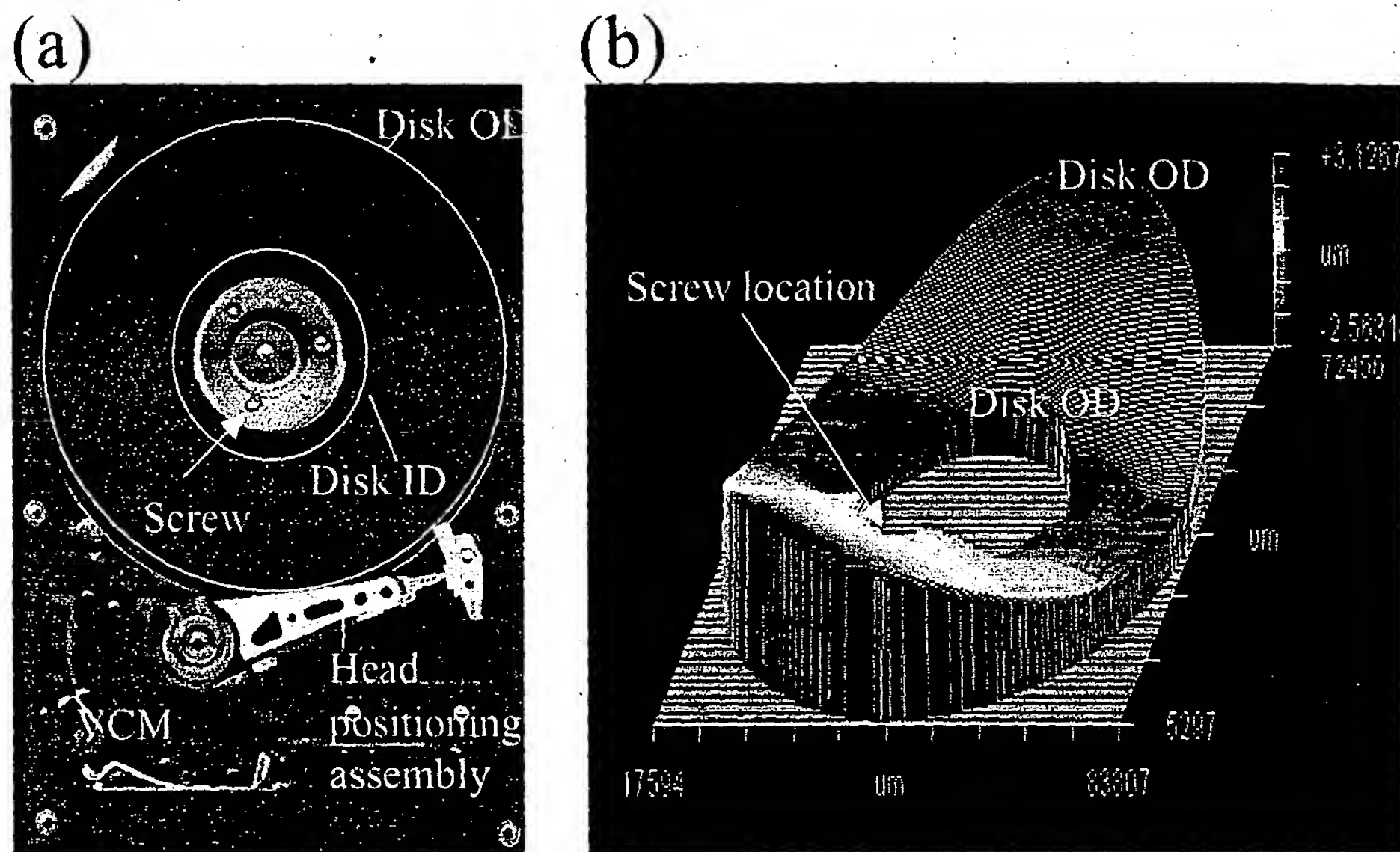


Figure 3 (a) Photograph of a typical disk drive having NS=3 periodically placed screws 134, in which case physical location of an VCM 130 and head positioning assembly 108 are shown relative to the disk 102 as depicted in Figure 1. (b) Deformation of disk 102 of (a) in a shape of a "potato chip" is shown indicating primary wave number $n = 2$.

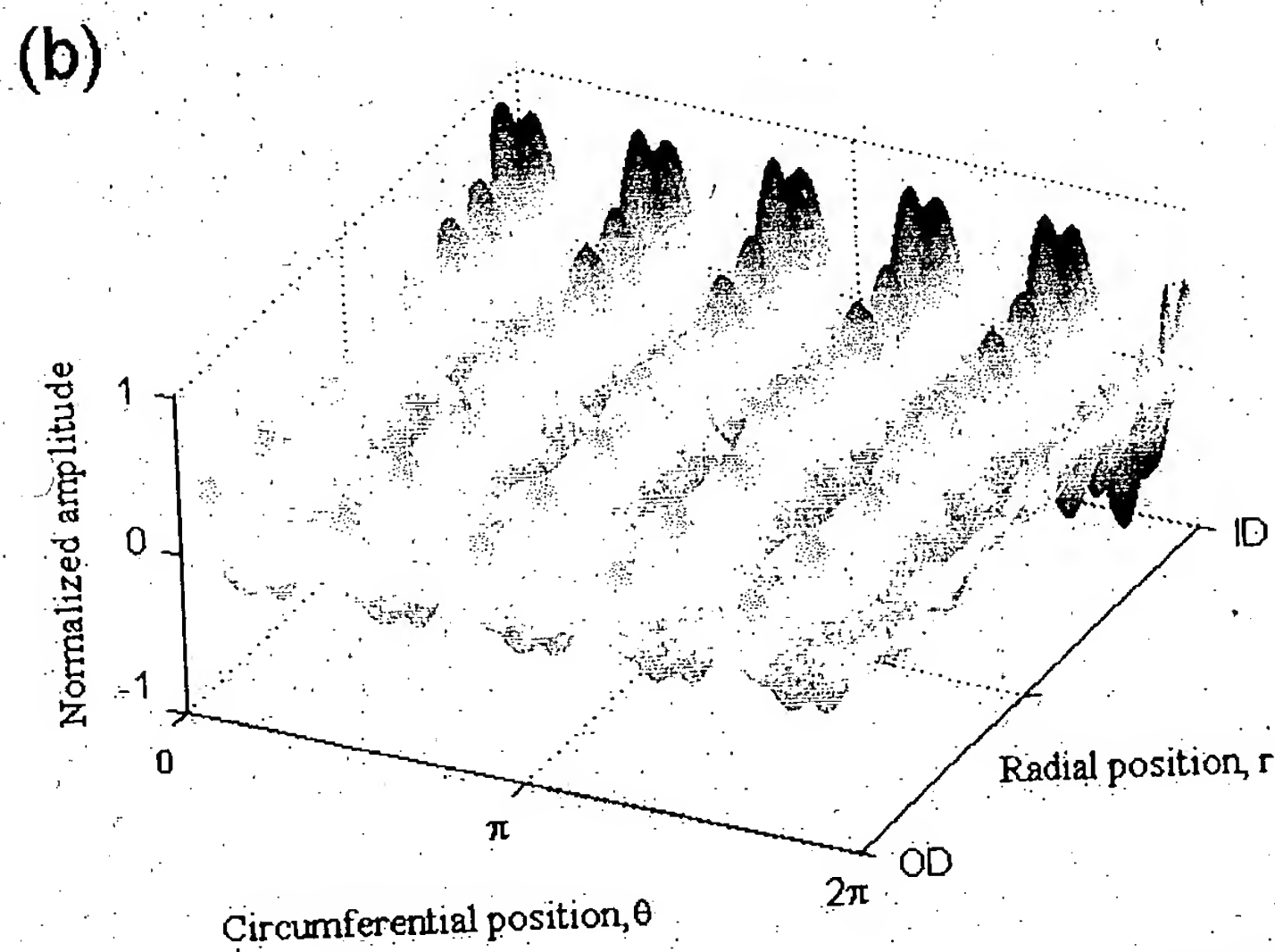
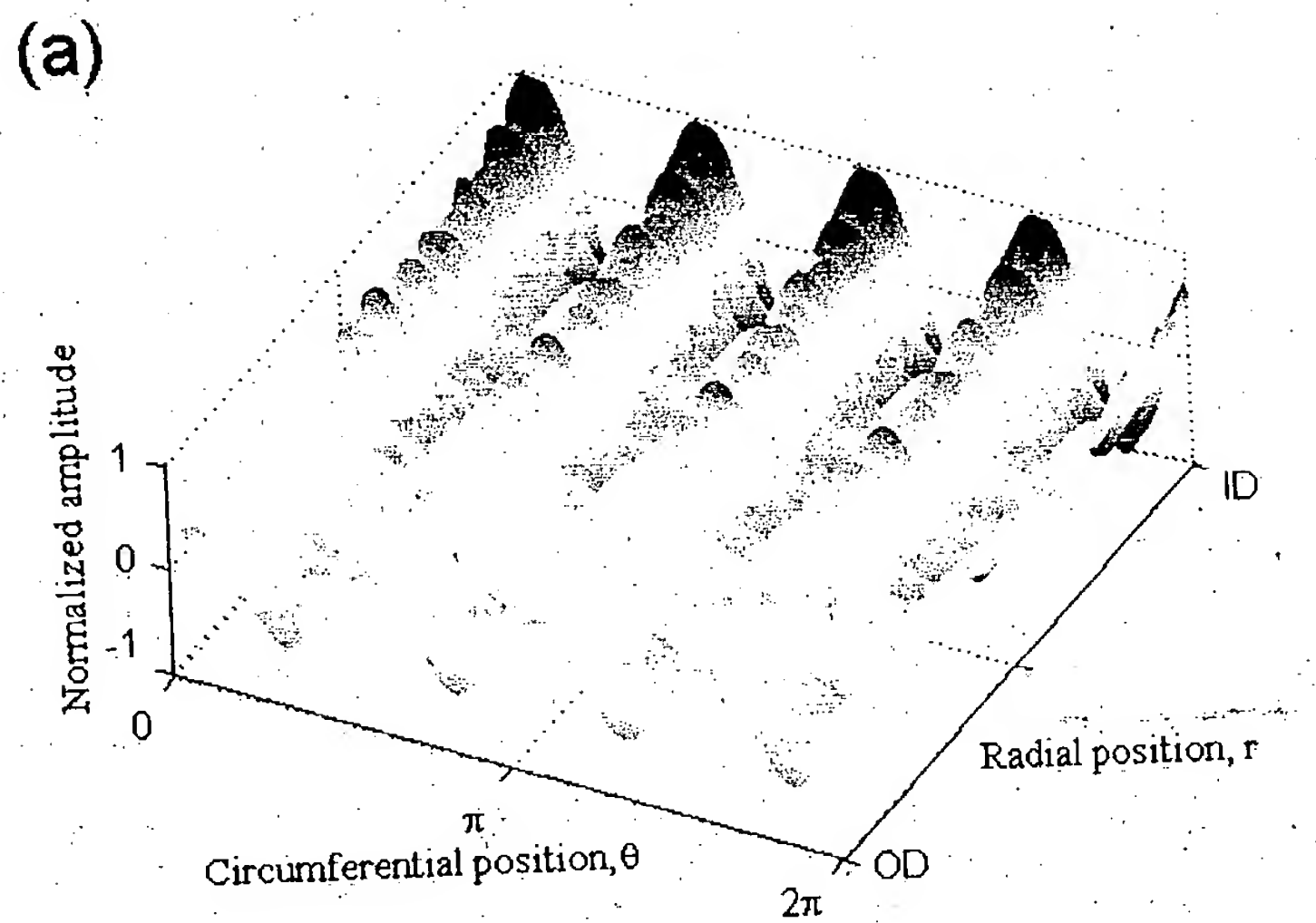


Figure 5 Servo observed 4th, (a), and 5th, (b), RRO harmonic showing amplitudes ramp toward ID, in which case NS=3 and $n=2$.

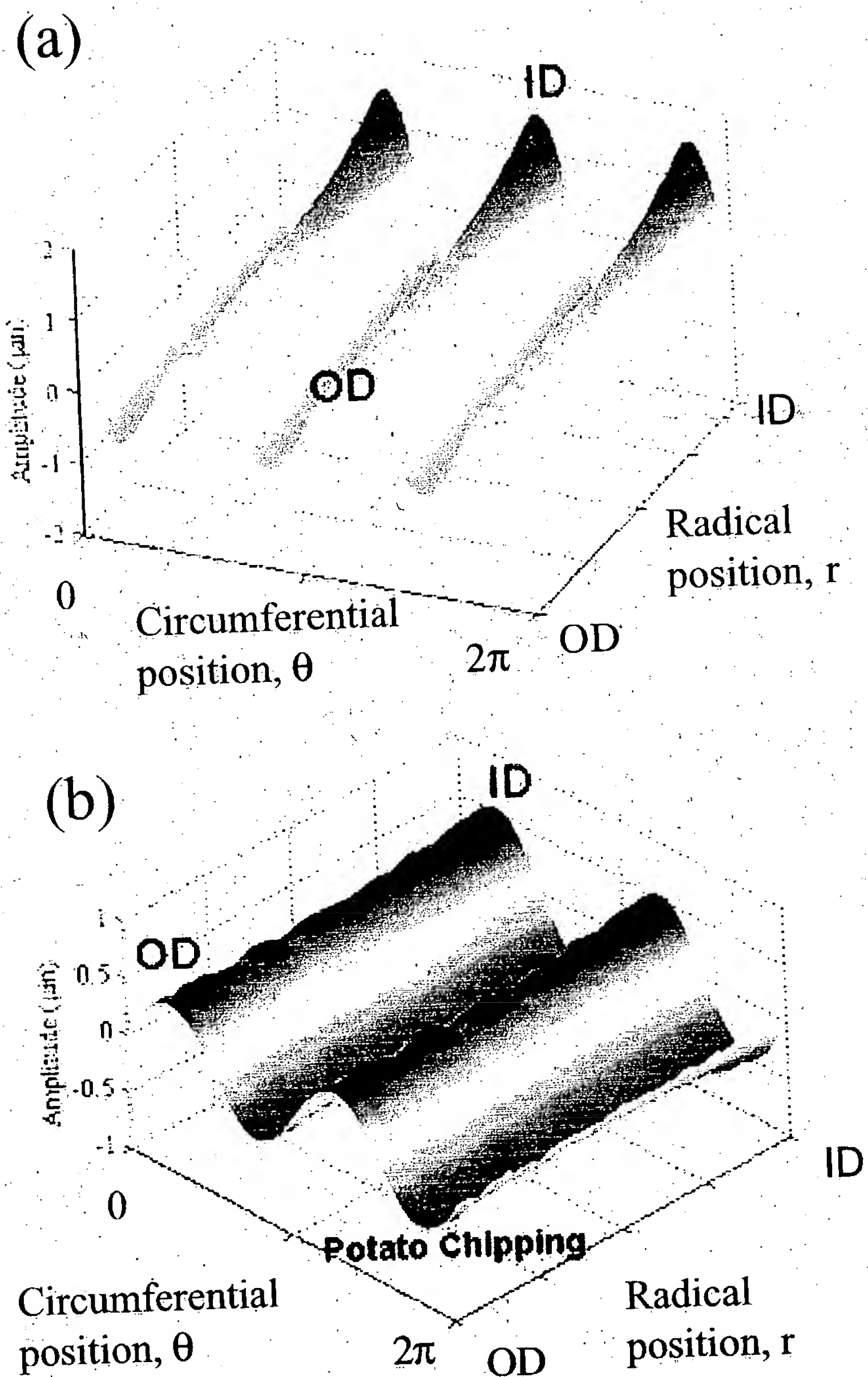


Figure 4 Servo observed 3rd, (a), RRO harmonic showing its amplitude ramps toward ID caused by NS=3 evenly spaced screws 134 as depicted in Fig. 3 (a). (b) Servo observed 2nd RRO harmonic is shown indicating uniform amplitude from disk 102 OD to ID as depicted in Fig. 3 (b).

| | | Modulated Harmonics, m | | | | | | |
|------------------------|---|-------------------------------------------------|---|---|---|---|---|---|
| Physical wavenumber, n | | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| | 0 | | | | | | | |
| | 1 | | | | | | | |
| | 2 | | | | | | | |
| | 3 | | | | | | | |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| | 6 | | | | | | | |
| | | Base wavenumber of the annular plate | | | | | | |
| | | Modulated harmonics due to presence of 3 screws | | | | | | |

Figure 6 Look-up table for modulated, amplitude RRO harmonics when NS=3.